

# In Situ Lunar Surface Measurements Via Miniature Gas Chromatography, Phase I

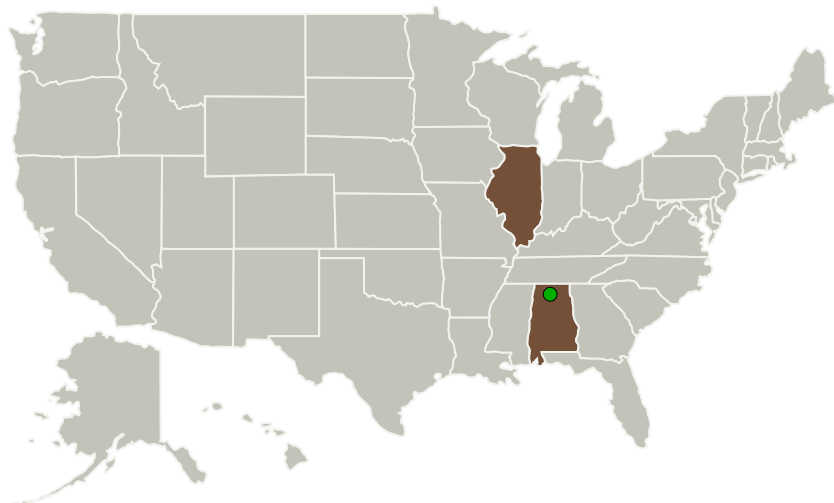
Completed Technology Project (2010 - 2010)



## Project Introduction

The Lunar Exploration Analysis Group (LEAG) has placed a high priority on determining the nature, distribution and transport of volatiles on the moon. The objective of this proposal is to create chip scale gas chromatographs for lunar exploration. Under DARPA support, Cbana has created a new class of microGCs that are smaller than ever before and yet show performance similar to those of full scale commercial GCs. In the proposed work we will redesign the GCs so that they can separate and detect the likely volatiles on the moon. A key step will be to replace the single GC column in our current device with 3 columns in series integrated into the same package in the proposed device. We will develop methodology to construct columns with the proper coatings and integrate them into a single package. We will also explore the effects of the temperature gradients on the columns in the harsh environment near the lunar poles. The will enable cbana to design devices that will be effective on the moon in phase II.

## Primary U.S. Work Locations and Key Partners



In Situ Lunar Surface  
Measurements Via Miniature Gas  
Chromatography, Phase I

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Organizations Performing Work	Role	Type	Location
Cbana Laboratories	Lead Organization	Industry Women-Owned Small Business (WOSB)	Champaign, Illinois
● Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

## Primary U.S. Work Locations

Alabama	Illinois
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## Project Transitions

▶ **January 2010:** Project Start

✓ **July 2010:** Closed out

## Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/139103>)

## Organizational Responsibility

**Responsible Mission Directorate:**

Space Technology Mission Directorate (STMD)

**Lead Organization:**

Cbana Laboratories

**Responsible Program:**

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Principal Investigator:**

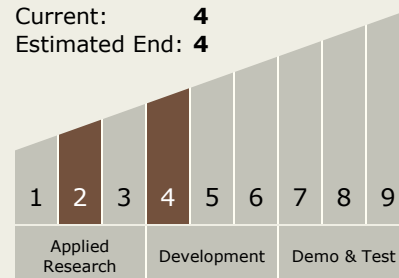
Junghoon Yeom

## Technology Maturity (TRL)

Start: 2

Current: 4

Estimated End: 4



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## Technology Areas

### Primary:

- TX07 Exploration Destination Systems
  - └ TX07.1 In-Situ Resource Utilization
    - └ TX07.1.1 Destination Reconnaissance and Resource Assessment

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System